UTAH GEOLOGICAL SURVEY
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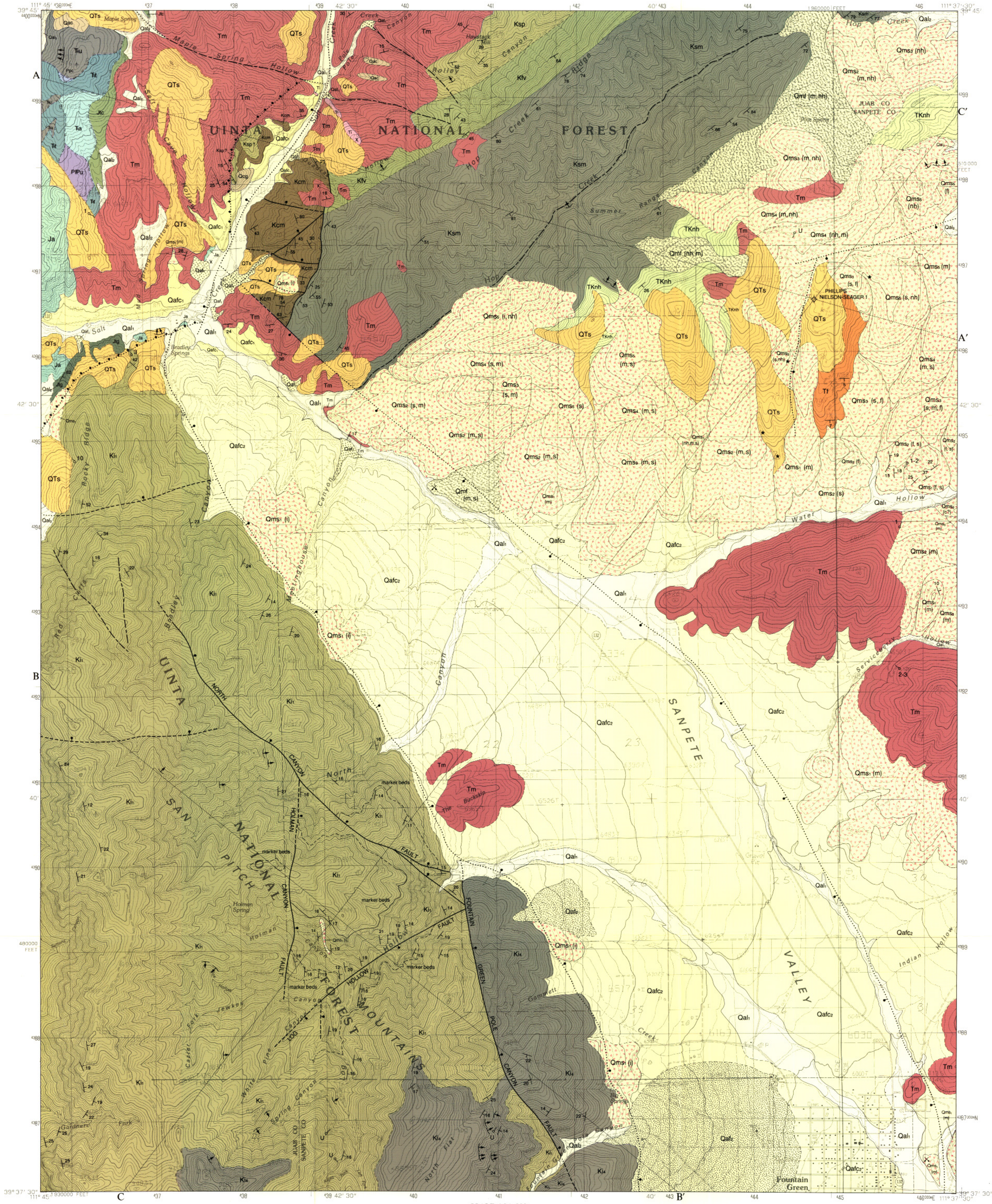
UTAH DEPARTMENT OF NATURAL RESOURCES

Plate 1
Utah Geological and Mineral Survey Map 134
Provisional Geologic Map of Fountain Green North Quadrangle



PROVISIONAL GEOLOGIC MAP OF THE FOUNTAIN GREEN NORTH QUADRANGLE, JUAB AND SANPETE COUNTIES, UTAH

by
Raymond L. Banks

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Plate 2
Utah Geological and Mineral Survey Map 134
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DESCRIPTION OF MAP UNITS

QUATERNARY

Qal$_1$ — Younger alluvial deposits — *Dark-brown, reddish-brown or gray, unconsolidated, poorly sorted, poorly to moderately stratified, clay- to cobble-sized material. Occurs in channels and on canyon floors. Usually less than 50 feet (15 m) thick.*

Qcg — Colluvial gravel deposits — *Sand- to boulder-sized material derived entirely from the Indianola Group. Occurs in a cone at the base of a steep slope.*

Qac — Colluvial slopewash deposits — *Moderately consolidated, poorly sorted, locally derived, clay- to cobble-sized particles deposited in shallow gullies on hillslopes. Ranges up to 20 feet (6 m) thick.*

Qaf$_1$ — Younger alluvial-fan deposits — *Moderate reddish-brown to gray, poorly to moderately sorted, nonstratified, clay- to cobble-sized material deposited in fans at the mouths of smaller hollows. Rarely exceeds 50 feet (15 m) thick.*

Qafc$_1$ — Coalesced younger alluvial-fan deposits — *Coalesced moderate reddish-brown to gray poorly to moderately sorted, nonstratified, clay- to cobble-sized material deposited in fans at the mouths of smaller hollows. Rarely exceeds 50 feet (15 m) thick.*

Qal$_2$ — Older alluvial deposits — *Dark brown, reddish-brown, or gray, unconsolidated, poorly sorted, poorly to moderately stratified gravel, sand, silt, and clay. Occurs at higher elevations and in exposures incised by later drainages. Rarely exceeds 50 feet (15 m) thick.*

Qaf$_2$ — Older alluvial-fan deposits — *Moderate reddish-brown to gray, poorly to moderately sorted, nonstratified, clay- to boulder-sized material deposited in fans at the base of the Gunnison Plateau. Overlies coalesced alluvial fans. Isolated by downcutting of later drainages. Range from 40 to 100 feet (12-30 m) thick.*

Qafc$_2$ — Coalesced older alluvial-fan deposits — *Moderate reddish-brown to gray, poorly to moderately sorted, crudely bedded, clay- to boulder-sized material deposited in fans at the base of the Gunnison Plateau and Cedar Hills. Isolated by downcutting of later drainages. About 250 feet (76 m) thick.*

Qmf — Debris-flow deposits — *Poorly sorted, clay- to boulder-sized material that occurs as hummocky, sinuous deposits. Occur along Hop Creek Canyon.*

Qms — Landslide deposits — *Extremely poorly sorted, clay- to block-sized (up to about 20 feet or 6 m in average diameter) material deposited in hummocky to terrace-like mounds and lobes. The landslides are differentiated according to relative age (Qms$_1$ -youngest; Qms$_5$ - oldest). Where possible, multiple formations involved in a single slide movement are differentiated (s-Salt Creek Fanglomerate, m-Moroni Formation, c-Colton (?) Formation, f-Flagstaff Formation, nh-North Horn Formation, i-Indianola Group).*

QUATERNARY/TERTIARY

QTs — Salt Creek Fanglomerate — *Consolidated to unconsolidated pebbles, cobbles, and boulders in a reddish-brown, clay- to sand-sized matrix. Thickness is highly variable; locally may exceed 500 feet (152 m).*

TERTIARY

Tm — Moroni Formation — *Light-gray to dark-gray, waterlaid volcanic conglomerate and tuffaceous sandstone. Ranges up to about 1000 feet (305 m) thick.*

Tf — Flagstaff Limestone — *Yellowish-gray to light-gray, arenaceous, interclastic limestone with dark chert and mudstone. Pebbly near base. Probably about 300 to 750 feet (91-230 m) thick.*

TERTIARY/CRETACEOUS

TKnh — North Horn Formation — *Poorly exposed, yellowish-gray conglomerate, pink sandstone, and red mudstone. Up to about 2600 feet (792 m) thick.*

CRETACEOUS

Indianola Group

Cedar Hills nomenclature

Ksm — Sixmile Canyon Equivalent — *Massive, grayish-orange to yellowish-gray, clast-supported conglomerate with interbedded sandstone and sandstone lenses. Probably more than 7100 feet (2165 m) thick.*

Kfv — Funk Valley Equivalent — *Light-gray to yellowish-gray, pebble sand- with conglomeratic lenses. About 1600 feet (488 m) thick.*

Ksp — Sanpete Equivalent — *Massive, yellowish-gray to pale-red conglomerate with interbedded sandstone and sandstone lenses. Approximately 1300 to 1400 feet (396-427 m) thick.*

Gunnison Plateau nomenclature

Ki$_4$ — Member 4 — *Massive, yellowish-gray to light-gray, clast-supported conglomerate overlain by yellowish-orange sandstone with abundant ironstone concretions and liesegange banding. Ranges up to at least 1500 feet (457 m) thick.*

Ki$_1$ — Member 1 — *Massive, yellowish-gray to pale red, clast-supported conglomerate with interbedded sandstone, sandstone lenses, and reddish-orange arenaceous limestone. About 3700 feet (1128 m) thick.*

Kcm — Cedar Mountain Formation — *Interbedded, bright reddish-orange, calcareous mudstone, pink sandstone, yellowish-gray conglomerate, and gray, oncolitic limestone; 1300 to 1600 feet (396-488 m) thick.*

JURASSIC

Jtg — Twist Gulch Formation — *Interbedded, light-brown, calcareous siltstone, mudstone, gritstone, and light-gray sandstone. Probably 1200 to 1900 feet (366-579 m) thick.*

Ja — Arapien Shale — *Interbedded, greenish-gray to red, argillaceous limestone, sandstone, siltstone, and mudstone. Locally salt-bearing. Probably about 5500 feet (1676 m) thick, but locally much thicker and thinner due to structural deformation.*

PALEOZOIC AND MESOZOIC — *Material ranging from Pennsylvanian to Early Jurassic occurs in a landslide or detachment block complex in the northwest corner of the quadrangle. The landslide or detachment complex is of post-Middle Jurassic to pre-Oligocene age. Since most of the material maintains original bedding and can be identified by formation, it is mapped by original formation.*

Jtc — Jurassic Twin Creek Limestone — *Red to gray silty shale, siltstone, argillaceous limestone, and dense oolitic limestone. Contains* Pentacrinites.

Trа — Triassic Ankareh Formation — *Pale-red to moderate-reddish-brown calcareous shale, siltstone, sandstone, and brecciated sandstone.*

Trt — Triassic Thaynes Formation — *Gray and tan fossiliferous micrite, arenaceous, sparse biomicrite, and dolomitic limestone.*

Tru — Triassic deposits, undifferentiated — *Light-brown to pale-brown (weathered color), grayish-red to grayish-yellow-green (fresh color) siltstone and very fine-grained sandstone. May be derived from the Woodside, Thaynes, or Ankareh Formations.*

Ppc — Permian Park City Formation — *Light-gray to medium-dark-gray biomicritic limestone. Contains abundant bryozoans and crinoid fragments.*

PIPu — Pennsylvanian-Permian deposits, undifferentiated — *Medium-light-gray to olive-black fossiliferous biomicritic and pelmicritic limestone. Contains abundant foraminifer, fusulinid, brachiopod and pelycepod fragments, and lesser crinoid and bryozoan fragments. Derived from either the Oquirrh Formation or the Kirkman Limestone.*

INTRUSIVE IGNEOUS ROCKS (TERTIARY)

Ti — Salt Creek dike — *Pale-brown to grayish-red andesite porphyry containing plagioclase, polycrystalline phenocrysts containing sanadine, and biotite in an aphanitic groundmass. 33.6 ± 1.4 Ma K-Ar age. Where exposed it is 30 feet (9 m) thick and about 2000 feet (610 m) long.*

Ksf — South Flat Formation — *On cross section only.*

Ju — Undifferentiated Jurassic deposits — *On cross section only.*

Note: For lithologic column, see map booklet.

MAP SYMBOLS

CONTACT — *dashed where approximate.*

NORMAL FAULT — *dashed where approximate, dotted where inferred; bar and ball on downthrown side.*

INFERRED THRUST FAULT — *teeth on upper plate*

REVERSE FAULT — *dashed where approximate, teeth on upthrown side.*

PHOTOGEOLOGIC LINEAMENT

LANDSLIDE COMPLEX BOUNDARY, *approximate*

★ SELECTED LOCATION OF WELL-EXPOSED OUTCROP

x PROSPECT PIT GRAVEL PIT

42 STRIKE AND DIP OF BEDDING

SPRING — *number indicates approximate output in gals/min. U = unmeasured or flow too small to measure.*

EXPLORATION WELL — *Phillips Neilson-Seager #1*

LANDSLIDE OR SLUMP — *associated with 1983-85 wet cycle*

CORRELATION OF MAP UNITS